Standards of Success Study Annotated Bibliography

This bibliography was produced for the Standards of Success Study by staff at the Roadside and Site Development Unit of the Design Office, WSDOT. The references listed relate to the following subjects:

- Performance standards for wetland mitigation
- Wetland ecology
- Wetland plant succession or disturbance/recovery process
- General plant succession or disturbance/recovery process
- Restoration of wetlands or terrestrial sites
- Ecological development of wetland mitigation sites
- Design of wetland mitigation sites
- Reviews of wetland mitigation sites for permit compliance or ecological success
- Monitoring of wetlands or specific components of wetland ecology including functional assessment

Citation	**Annotation**
Abbruzzese, B., A.B. Allen, S. Henderson, and M.E. Kentula, 1988. Selecting sites for comparison with created wetlands, p.291-297. In C.D.A. Rubec and R.P. Overend (Comp.), Proceedings of Symposium '87—Wetlands/Peatlands. Environment Canada, Ottawa, Ontario, Canada.	A method for randomly selecting natural wetlands from within an ecoregion to serve as reference. Also analysis of the conditions found on these wetlands
Adamus, P.R. 1988. Criteria for Created or Restored Wetlands. Chapter 39 in: D.D. Hook et al. The Ecology and Management of Wetlands Volume 2: Management, Use and Value of Wetlands. Timber Press, Portland, OR	Proposes the use of Function Assessment to determine permit compliance.
Admiraal, A. N. and C. Warwick, (eds.). 1997. Illinois wetland restoration and creation guide.	Goals in terms of functions; not in terms of succession
Arcieri, W. R., 1996, Wetland Design Using Long-term Regional Groundwater Data to Determine Normal Hydrologic Conditions, Wetland Journal 8(1):14-15	short discussion on the importance of monitoring hydrology
Azous, A. L., M. B. Bowles, and K. O. Richter. 1998. Reference Standards and Project Performance Standards for the Establishment of Depressional Flow-Through Wetlands in the Puget Lowlands of Western Washington. King County Department of Development and Environmental Services. Renton, WA. KC Grant No. G9700017.	Provides empirically derived reference standards for planning and designing creation, restoration and enhancement projects. Performance standards used to compare the development of ecological characteristics associated with specific wetland functions. Based on long-term field studies of 19 reference wetlands among other sources.
Azous, A.L. and Horner, R.R., 1997, Wetlands and Urbanization, Implications for the Future, Final report of the Puget Sound Wetlands and Stormwater Management Research Program. Washington State Department of Ecology, King County Water and Land Resources Division and University of Washington.	The group was created to address concerns over wetland degradation due to urbanization and increase of storm water inputs in King County. Literature review in 1986 showed lack of research on Pacific Northwest wetlands in general and influence of storm water in particular. Nineteen lowland King County wetlands were sampled for impact of stormwater and urbanization over 8 years starting in 1988.

Barbour, M.G., Burk, J.H., Pitts, W.D., 1987, Terrestrial Plant Ecology, Benjamin/ Cummings Publishing Co. 634 pages.	Text-book of ecological concepts including discussions on a variety of different sampling techniques. Less detail on sampling vegetation than Muller-Dombois and Ellenberg but more breadth.
Barry, W. J., A. S. Garlo, and C. A. Wood. 1996. Duplicating the Mound-and-Pool Microtopography of Forested Wetlands. Restoration & Management Notes 14:1 pp. 15-21.	Applies to Forested wetland design
Bedford, B.L. and E.M. Preston. 1988. Developing the scientific basis for assessing cumulative effects of wetland loss and degradation on landscape functions: Status, perspectives, and prospects. Environmental Management 12(5):751-77.	See title.
Bloom, S. A. Multivariate Quantification of Community Recovery. Chapter 6 In: Cairns, J.-ed. The Recovery Process in Damaged Ecosystems. Ann Arbor Science Publishers, Ann Arbor.	A model to answer the following questions about the impact of disturbances on natural communities: 1. Does a community recover or change states? 2. If it recovers, how rapid and how complete? 3. What is the path of the recovery?
Boggs, K. and T. Weaver. 1994. Changes in Vegetation and Nutrient Pools During Riparian Succession. Wetlands 14(2): 98-109	Successional changes in vegetation, biomass, and nutrient pools in floodplain in Eastern Montana.
Booth, G.D., M.J. Niccolucci, and E.G. Schuster. 1994. Identifying proxy sets in multiple linear regression: An aid to better coefficient interpretation. US Department of Agriculture, Forest Service, Research Paper INT-470.	
Brand, T. and V. T. Parker, 1995. Scale and general laws of vegetation dynamics. OIKOS 73:375-380.	General definition of vegetation dynamics is “any change in plant communities, whether seasonal, successional, or post-glacial”. Balance definition of vegetational change with reverse consideration = the process of vegetational dynamics also includes selection on a species to persist in a habitat despite a changing abiotic and biotic environment. Persistence emphasizes the total integration of species life history and historical environmental regimes. Emphasis is on the ongoing, interactive determination of assemblage pattern, especially composition. In the patch dynamic model, species availability is the environmentally constrained presence of species after a disturbance; newly generalized to be the interactively determined presence of species (assemblage profile) at any point in time.
Brinson, M. M., 1993, A Hydrogeomorphic Classification of Wetlands, Technical Report WRP-DE-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS www.wes.army.mil/EL/wetlands/wlpubs.htmlv	Review of many other wetland classification systems leading to development of HGM. Explains system of HGM classification through it’s three main components: geomorphic setting, water source, and hydrodynamics.
Brinson, M.M. 1993. Changes in the Functioning of Wetlands along Environmental Gradients. Wetlands 13(2): 65-74	Assessing wetlands according to landscape-based continua and resource-based continua instead of hydrologic continua. This claims to reveal more about the fundamental properties of wetlands and incorporates the full flow of nutrients/sediment through the system rather than looking at wetland as source and sink of same.
Brinson, M.M., F.R. Hauer, L.C. Lee, W.L. Nutter, R.D. Rheinhardt. 1995. Guidebook for application of hydrogeomorphic assessments to riverine wetlands. Technical Report WRP-DE-11 U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS http://www.wes.army.mil/EL/wetlands/wlpubs.html	

Broughton, J. 1977. Created Wetlands Getting Better with Age. Land and Water. Sept/Oct p. 13-15	Applied Ecological Services describes several mitigation banks in Illinois.
Brown, M.T. 1991. Evaluating Created Wetlands Through Comparisons With Natural Wetlands. EPA/600/3-91/058. US Environmental Protection Agency, Environmental Research Laboratory, Corvallis, Oregon. National Technical Service Accessions Number PB92 111 566.	A study of nine natural and created wetlands outside Tampa, FL. Compared biological and physical parameters to make characterizations on the two groups as wholes. Gives detailed explanations of sampling procedure. Includes rapid ocular cover sampling for vegetation, soil organic matter, water quality, physical characteristics, surrounding landscape condition, etc.
Burke, D. J. 1997. Donor wetland soil promotes revegetation in wetland trials. Restoration & Management Notes 15:2 pp. 168-172	Comparisons between donor soil, normal planting and natural colonization in Pennsylvania.
Cairns, J., Jr. 1990. Lack of Theoretical Basis for Predicting Rate and Pathways of Recovery Environmental Management Vol. 14 No. 5, p. 517-526.	Crude estimate of the ability of ecosystem recovery following a major ecological disaster: Develop rating scale (1 - 3) for the following 6 parameters: 1 existence of nearby areas for providing organisms to re-colonize, 2 transportability of propagules, 3 condition of habitat following stress, 4 presence and persistence of residual effects, 5 chemical/physical environmental quality following stress, 6 potential of management agencies to assist remediation.
California Coastal Commission Procedural Guidance for Evaluating Wetland Mitigation Projects in California's Coastal Zone - Chapter 4 @ ceres.ca.gov/coastalcomm.web/weteval/we4.html	4.2.2 Outlines Goals, Objectives and Performance Standards in terms of importance, not specifics. Performance Evaluation p. 14. 4.2.5.3 Performance Curves (Simenstad and Thom in revision) p. 16
Canfield, R. 1941. Application of the Line Interception Method in Sampling Range Vegetation. Journal of Forestry 39: 338-394	
Canham, C. D., and Marks, P. L. 1985. The response of woody plants to disturbance: Patterns of establishment and growth. Chapter 11. In: Pickett and White (eds.) The Ecology of Natural Disturbance and Patch Dynamics. Academic Press, Orlando	An examination of the traits that affect the ability of woody plants to respond to openings created by natural disturbances. Which traits determine the types of disturbances in which a species is most likely to be successful in reaching reproductive size.
Cole, C. A., R. P. Brooks, and D. H. Wardrop. Large Scale Disturbances and Small Scale Responses. Penn State Cooperative Wetlands Center http://www.cas.psu.edu/docs/CASDEPT/FOREST/wetlands/cacab.html	Purposes of project are to determine improved design characteristics for created wetlands, assess natural succession in reference wetlands using seed banks and soil dating, and assess characteristics of created wetlands of different ages to begin to determine successional pathways, and compare created to reference to determine "success". Effort to assess successional tendencies of created wetlands - determine if they are moving toward some model exhibited by reference wetlands or if created wetlands form a unique population.
Connell, J. H. and Slatyer, R. O. 1977. Mechanisms of succession in natural communities and their role in community stability and organization. The American Naturalist 111:1119-1144	Changes in species composition following a disturbance. Alternative models to Clements.
Conner, W.H. 1994. The effect of forest management practices on southern forested wetland productivity. Wetlands 14(1):27-40	Management of the hydrology of forested wetlands and its affect on the productivity of the forest.

Cooke, S. S. 1997. Puget Sound Wetlands: Lessons Learned from a ten-year Study. Hortus West 8(2): 20-23, 107.	26 wetlands in Central western WA: Identified 11 distinct, typical wetland plant communities. No significant connection between wetland size and number of species present. Effect of urbanization on Natural Wetlands: Urbanization has the greatest ability to alter hydrology, which has a drastic effect on the wetland plant association. Wetland hydroperiod (frequency, depth, and duration) most affected by the watershed surrounding the wetland and the physical shape or type of wetland (open water, flow-through, or closed depression).
Cooke, S. S. and A. L. Azous. 1997. Chapter 3 Characterization of Puget Sound Basin Palustrine Wetland Vegetation in Azous and Horner. Wetlands and Urbanization: Implications for the Future. Washington State Department of Ecology, Olympia, WA.	Hydrologic regime, and the kinds and frequencies of disturbance appear to be more critical in determining the diversity and character of natural wetlands than size. Eleven distinct wetland plant communities identified that can be interspersed throughout individual wetlands. These 11 communities were "repeatedly observed" and "may be used as a guide for understanding species composition and community structure in wetlands and are relevant to developing reference plant communities for palustrine wetlands in the Puget Basin" Transition zones and higher richness in wetlands with several communities. Wetlands with richest and most diverse plant communities were typically characterized by more complex hydrology and more variable morphology.
Cooke, S., R. Horner, C. Conoly, O. Edwards, M. Wilkinson, M. Emers. 1989. Effects of Urban Stormwater Runoff on Palustrine Wetland Vegetation Communities—Baseline Investigation (1988). A Report to U.S. Environmental Protection Agency, Region 10 by King County Resource Planning Section.	Original baseline data and details of study design from the vegetation section of Azous and Horner (1997) Wetlands and Urbanization…
Cooper, C.F. 1957. The Variable Plot Method for Estimating Shrub Density. Journal of Range Management, 10:111-115	adapts the variable plot method to shrub canopies with equations to equate results to cover. Method appropriate for steppe habitats.
Cowardin, L.M., V. Carter, F.C. Goulet and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-79/31, US Department of the Interior, Fish and Wildlife Service. Washington, D.C.	The Cowardin classification system.
D'Avanzo, C. 1988?. Long-term evaluation of wetland creation projects. Wetland Creation and Restoration (chapter in a book I think) p. 487-496	Mostly salt water examples including USACE dredged material stabilization projects. We know little about basic aspects of many wetland systems "succession" in wetlands is less straightforward than previously assumed, and it is difficult to generalize from one wetland type to another. The main questions addressed are how have artificial wetlands evolved over time, and what can be learned from these effects concerning the feasibility of creating wetlands with long-term functions?
Daubenmire, R.F. 1959. Canopy coverage method for vegetation analysis. Northwest Science 33:43-64	Proposal of a method to visually assess cover by plants using "cover class" ratings.
Deller, A.S. and G.A. Baldassarre. Effects of flooding on the forest community in a greentree reservoir 18 years after flood cessation. Wetlands 18(1): 90-99	Comparisons of the effects of greentree reservoir management on vegetation to natural forested wetlands.

Demgen, F.C. 1988. A Review of Eighteen Wetland Mitigation Sites in the San Francisco Bay Region. In: Kusler, J.A.., Daly, S., and Brooks, G. (eds.), Urban Wetlands: Proceedings of the National Wetland Symposium, Oakland, CA Ass. of Wetland Managers, Berne, NY	Review for permit compliance. 35% fully successful, 85% mostly.
Dether, M.N., E.S. Graham, S. Cohen, L. M. Tear. 1993. Visual Versus Random-point Percent Cover Estimations: "Objective" is Not Always Better. Marine Ecology Progress Series (Mar. Ecol. Prog. Ser.), 96:93-100	Comparison of visual estimates of cover and Random Point Quadrats in rocky- intertidal and on digitized computer simulations. Visual estimates found to be more consistent across observers and more accurate.
Drake, J. A. 1990. The mechanics of community assembly and succession. Journal of theoretical biology 147:213-233.	
Drake, J. A. 1991. Community-Assembly Mechanics and the structure of an experimental species ensemble. The American Naturalist 137(1) p. 1-26	
Edwards, P. J., N. R. Webb, K. M. Urbanska, and R. Bornkamm. 1997. Chapter 17: Restoration ecology: science, technology, and society. In: Urbanska, Webb, and Edwards (eds.). Restoration Ecology and Sustainable Development. University Press, Cambridge.	ER may be regarded as an imitation of the process of ecosystem development as revealed by primary succession. Job is to accelerate these natural processes. Apparently clear goal of imitating well-defined reference system proves to be a shifting target as the dynamic nature of communities is recognized. Species cannot simply be brought together and be expected to form a persistent community with a particular composition. There may be many alternative stable states associated with a certain set of available species, depending on the order in which they are introduced. Existing communities may be a result of processes which are no longer operating, and for this reason, they may be impossible to re-create. Must accept many possible end-points and not strive too much toward a particular precisely defined community. Does species diversity matter? If the objective is to achieve an ecosystem with certain functional characteristics, does it even matter which species or how many species are present? Does genetic diversity matter? Evidence that during succession, the genetic structure of plant populations changes. How important such variation may be for the successful development of an ecosystem and for its long-term stability remains an open question.
Elzinga, C. L., D. W. Salzer, and J. W. Willoughby. 1998. Measuring and Monitoring Plant Populations. BLM Technical Reference 1730-1, BLM/RS/ST-98/0051730. Bureau of Land Management, Denver, CO.	Chapter 1 describes the role of monitoring in adaptive management. Chapter 4 discusses management objectives. Remainder about monitoring and analysis.
Fischel, M. 1987. Wetland Restoration/ Creation and the Controversy Over Its Use in Mitigation: An Introduction. In: Increasing Our Wetland Resources, Proceedings, National Wildlife Federation-Corporate Conservation Council, Washington, D.C.	brief overview of wetland mitigation to date
Floyd, D.A. and J.E. Anderson. 1987. A comparison of three methods for estimating plant cover. Journal of Ecology, 75:221-228.	Comparison of cover estimates by line intercept, point intercept and “cover-class” estimation in sagebrush-steppe. Point and line intercept produced similar results, the point intercept taking less time. Cover-class estimates produced higher results for small or rare individuals than other methods. Authors assume Cover-class only accurate for dominant species.

Ford, M. A. and Grace, J. B. 1998. The interactive effects of fire and herbivory on a coast marsh in Louisiana. Wetlands 18(1):1-8	effects on three common species.
Galatowitsch, S. M. and van der Valk, A. G. 1993. Natural revegetation during restoration of wetlands in the southern prairie pothole region of North America. In Wheeler, B. D, W. J. Fojt, and R. A. Robertson, (eds.). 1995 Restoration of temperate wetlands. John Wiley and Sons, New York.	Results of restoration of Potholes converted to agriculture indicated that historic factors accounted for a significant portion of the variation in vegetation composition. How and when a wetland was drained primarily determines the composition of the initial vegetation, and the influence of these patterns is reduced with time. The vegetation of re-flooded wetlands does not resemble that of natural wetlands in most respects after 3 years
Garbisch, E.W. 1989. Wetland Enhancement, Restoration and Construction. In: Wetlands Ecology and Conservation: Emphasis in Pennsylvania. Majumdar, S. K., Brooks, R. P., Brenner, F. J., and Tiner, R. W. (eds.) The Pennsylvania Academy of Science.	Overview and guideline on creating/restoring wetlands
Glenn-Lewin, D. C., R. K. Peet, and T. T. Veblen, (eds.). 1992. Plant Succession: Theory and Prediction. Chapman and Hall, London.	Attempt to develop a theoretical framework for understanding and predicting vegetation change since ecology was first recognized. Chapters are introductions to issues and approaches currently in use: Patterns and processes of vegetation dynamics, Establishment, colonization and persistence, Community structure and ecosystem function, Regeneration Dynamics, From population dynamics to community dynamics: modeling succession as a species replacement process, Statistical models of succession, Individual-based models of forest succession, Climate change and long-term vegetation dynamics
Greig-Smith, P., 1983, Quantitative Plant Ecology- third ed., University of California Press, Berkeley	Extensive and highly technical discussion on the analysis of plant distribution and community analysis. Strong focus on statistical analysis. Little focus on sampling techniques
Grenell, P. 1988. The Coastal Conservancy's Emerging Role in Shaping Wetland Mitigation Approaches: Standards and Criteria. Proceedings of the National Wetland Symposium: Mitigation of Impacts and Losses. New Orleans, LA. Association of State Wetland Managers Technical Report 3, Berne, NY	Discussion of mitigation ratios, performance standards and their negotiation with regulators. California.
Grennell, P. 1994. Lessons learned in wetlands restoration and enhancement. p. 7-19. in: Falconer, R. A. and P. Goodwin (eds.). Wetland Management. Proceedings of a Conference of Civil Engineers. Thomas Telford, London.	p.9: Evaluating the Ca. Coastal Conservancy's Wetland Program's effectiveness: (original pub: Josselyn, et. al. 1993. Evaluation of Coastal Conservancy Enhancement Projects: 1978-1992. San Francisco State University Romberg Tiburon Center, Tiburon.) Project effectiveness measured by evaluation of 11 wetland functions and assessment of project success in meeting general criteria of the National Research Council. Wetland functions included vegetative diversity (among others we commonly see in current SOS).
Gwin, S.E. and M.E. Kentula. 1990. Evaluating Design and Verifying Compliance of Wetlands Created Under Section 404 Of The Clean Water Act In Oregon. EPA/600/3-90/061. US Environmental Protection Agency, Environmental Research Laboratory, Corvallis, Oregon. National Technical Information Service Accession Number PB90 261 512/AS	Survey of "as-built" conditions in 11 created wetlands in the Portland area. Verifying compliance

Gwin, S.E., M.E. Kentula and P.W. Shaffer. 1999. Evaluating the effects of wetland regulation through hydrogeomorphic classification and landscape profiles. Wetlands 19(3): 477-489	Use of HGM classification to assess mitigation wetlands in Portland area. Found that Mitigation wetlands frequently take the shape of uncommon HGM types or atypical ones. Documented shift in type of wetland habitat available due to mitigation.
Hobbs, R. J. 1996. Towards a Conceptual Framework for Restoration Ecology	Key Processes in restoration ecology: Identify processes leading to degradation, develop methods to ameliorate the degradation, determine realistic goals for re-establishing species and functional ecosystems, develop easily observable SOS, develop practical techniques for implementing goals at the correct scale, document and communicate to larger community, and monitor key system variables, and adjust procedures when necessary. Alternative Stable States and Thresholds: prevailing paradigm is to return system to a desired state by accelerating biotic change or re-initiating successional processes. However, ecosystems may instead undergo rapid transitions between different metastable states. Success Criteria Complete restoration is probably unachievable, but how close should it get? Develop clear goals for each attribute, and assign priorities to them. Alternative approach is to use a range of structural, compositional and functional measures to estimate ecosystem health, which can be assessed relative to the range of natural variability for a number of parameters (density of dominant plants, structural diversity, native re-colonization also presence of pollinators, seed bank development).
Holland, C.C., J. Honea, S. Gwin, and M. Kentula. 1995. Wetland Degradation and Loss in the Rapidly Urbanizing Area of Portland, OR. Wetlands 15(4):336-345.	Review of wetland losses around Portland with analysis and discussion of the details.
Horner, R.R., and K.J. Raedeke. 1989. Guide for Wetland Mitigation Project Monitoring - Operational Draft. Prepared for Washington State Transportation Commission, Department of Transportation, Olympia, Washington. WA-RD 195.1.	Proposes a method for monitoring mitigation sites for hydrology, water quality, soil, vegetation, invertebrates, wildlife, fish and to map the wetland.
Hruby, T., 1999, Assessments of Wetland Functions: What They Are and What They Are Not. Environmental Management, 23(1): 75-85	Review of different Function Assessment models and their strengths and weaknesses. Includes breakdown by Logic/Mechanistic and definitions of Classification, Characterization, Rating, Assessment, and Evaluation.
Hurby, T., T. Granger, K. Brunner, S. Cooke, K. Dublonica, R. Gersib, L.Reinelt, K. Richter, D. Sheldon, E. Teachout, A. Wald, and F. Weinmann., 1999. Methods for Assessing Wetland Functions Volume 1: Riverine and Depressional Wetlands in the Lowlands of Western Washington. WA State Department of Ecology publication #99-115	Regional Function Assessment method based on the Hydrogeomorphic classification system for wetlands. Accesses riverine and depressional wetlands and their sub-classes with a quantitative index of 12 to 15 functions that are deemed most useful to managers and the public. Produces ordinal scores from 0 to 10.
Innes, J.L. 1998. Measuring Environmental Change. Chapter 19 In: Peterson and Parker (eds.) Ecological Scale: Theory and Applications. Columbia University Press, New York.	Spatial and temporal scales in measuring environmental change. Measurement at inappropriate scales may not show important change. E.g.: time.
Iverson, L.R., M.K. Wali. 1982. Reclamation of Coal Mined Lands: the Role of *Kopchia scoparia* ands other pioneers in early succession. Reclamation and Revegetation Research, 1:123-160	Terrestrial prairie succession in North Dakota.

Jordan, W. R., Gilpin, M. E., and Aber, J. D. (eds.), 1987, Restoration Ecology: A synthetic approach to ecological research, Cambridge University Press	Chapter 5: reclamation vs. restoration: preparing soil to support whole ecological process Chapter 7: Restoration of forests: the importance of each sere in the outcome of the final target climax community; the role of the understory plants as well as invertebrates, mammals, birds and fungi. All based on Midwest hardwood forests. Chapter 14: fungal and mycorrhizal importance in prairie ecosystem restoration.
Jordan, W.R. 1993. Restoration as a Technique for Identifying and Characterizing Human Influences on Ecosystems. Chapter 21 In: McDonnell and Pickett (eds.) Humans as Components of Ecosystems. Springer-Verlag, NewYork	Using restoration as an experiment to gage the influence of human activities on ecosystems.
Kennedy, K.A. and P.A. Addison. 1987. Some considerations for the use of visual estimates of plant cover in biomonitoring. Journal of Ecology 75:151-157	
Kentula, M. E. Wetland Restoration and Creation. U. S. EPA @water.usgs.gov/public/nwsum/WSP2425/restoration.html	Evaluation of Success p. 8. WRP of EPA is developing an approach to establish quantitative performance criteria for project wetlands, using natural wetlands as reference sites. Performance curves (p. 10) compare natural with project wetlands. Address functions. Mean level of functions in mature projects is less than that for natural wetlands
Kentula, M. E., Brooks, R. P., Gwin, S. E., Holland, C. C., Sherman, A. D. and Sifneos, J. C. (Hairston, A. J.-ed.), 1993, An Approach to Improving Decision Making in Wetland Restoration and Creation, CK Smoley Inc.; CRC Press, Inc., Boca Raton, FL	Developed by the Wetlands Research Program (WRP) of the EPA, this approach looks at both existing and "project" wetlands to "develop performance criteria, track the development of projects and suggest improvements in the design of future projects". Looks at projects that are around five years old or less that are open water ponds with fringe emergent zones in Oregon, Connecticut and Florida. Developed performance curves for the function level of project wetlands in general by looking at different sites of different ages in one season.
Kentula, M. E., Sifneos, J. C., Good, J. W., Rylko, M., Kunz, K., 1992, Trends and Patterns in Section 404 Permitting Requiring Compensatory Mitigation in Oregon and Washington, USA, Environmental Management 16(1): 109-119	Survey of 58 wetland mitigation permits in Oregon and 35 in Washington between 1977 and 1987, all initially issued by USACE. Article runs down the statistics on number of acres impacted, # created, types of wetlands impacted/created, location, setting, activity requiring impact, and trends in permitting
Kirkman, L. K., R. F. Lide, G. Wein. And R. R. Sharitz. Vegetation Changes and Land Use Legacies of Depressional Wetlands of the Western Coastal Plain of South Carolina. Wetlands Vol.16, No. 4. (1996).	Study of Carolina bays - depressional wetlands. Separation of recovery trajectories from other successional pathways, initial hydrogeomorphic differences, and/or continued human influences was not possible. Found relative stability of herb-dominated bays, indicating that this is not necessarily part of a continuum toward an eventual hardwood forest.
Kulp, C. J. and R. W. McCoy. 1992. An Evaluation of 30 Wetland Mitigation Sites Constructed by the PADOT Between 1983 and 1990. U. S. Fish and Wildlife Service. Pennsylvania Field Office Special Project Report 92-3.	No data on prior functions and values of sites. Usually older sites were more diverse. Evaluation of Success: p. 19. EPA procedure based on 5 parameters: vegetation type, plant vigor, % bare ground (>5%=failure), soils and hydrology, and size (Kline 1991). Most based on Delineation Manual. Found no development of Scrub-shrub or forested wetlands was accomplished.

Kusler, J. A. and M. E. Kentula, (eds.) 1989. Wetland Creation and Restoration: The Status of the Science. EPA/600/3-89/038	Large collection of reports and case studies of wetland creation and restoration efforts to date throughout the Unite States. Nothing is very specific due to broad scope. Comments are made on overall success of different types of projects in different regions. Executive Summary - Long-term success may be quite different from short-term success (mostly hydrology and human impacts, also vegetation characteristics may not do not necessarily indicate function). Long-term success depends upon the ability to access, recreate, and manipulate hydrology. Example of one chapter: Josselyn, M., J. Zedler, and T. Griswold. Wetland Mitigation Along the Pacific Coast of the United States. Reviews the literature of mitigation projects in California, Oregon and Washington. Tries to draw conclusions on compliance, success, trends in type of impacts and mitigation. Most projects profiled are saltwater marshes. Some vernal pools in CA mentioned.
Kusler, J.A. 1988. Major Issues: Mitigation of Impacts and Losses. Proceedings of the National Wetland Symposium: Mitigation of Impacts and Losses. New Orleans, LA. Association of State Wetland Managers Technical Report 3, Berne, NY	Policy issues surrounding mitigation.
Kusler, J.A. 1988. No Net Loss and the Role of Wetlands Restoration/ Creation in a Regulatory Context. In: Kusler, J.A.., Daly, S., and Brooks, G. (eds.), Urban Wetlands: Proceedings of the National Wetland Symposium, Oakland, CA. Association of Wetland Managers, Berne, NY	see title
LaPerriere, A. J. and Farmer, M. M. 1989. Recent Wetland Restoration/ Creation Actions in the New York District. In: Proceedings of the 16th Annual Conference on Wetlands Restoration and Creation, Tampa, FL	Four case studies on restoration/creation as a result of enforcement actions by the Corps in New York/ New Jersey area.
Law, R. and R. D. Morton, 1996. Permanence and the assembly of ecological communities. Ecology 77(3) p. 762-775.	Paper attempts to model ecological succession as it is driven by community dynamics. Invasion resistance is one measure by which the stage of succession can be characterized. Three conceptual stages in a continuum: 1. High invasion resistance because only pioneer species are able to survive. Resistance to invasion declines with colonization. 2. starts with low invasion resistance and successful invaders dependent on others already present. Colonization acts to increase resistance. Adjustments until endpoint is reached. 3. During later stages of succession when invasion resistance increases little if at all. May end in climax or heteroclinic cycle. Many alternative successional pathways to get to a few endpoints. Should not expect order of species arrivals to lead to a different endpoint.

Lockwood, J. L. 1997. An alternative to Succession Restoration and Management Notes 15:1, 45-50.	Assembly or Succession?: Distinguish between assembly-based and succession-based restoration methods. Classic ideas of autogenic succession include individualistic species regarded as more or less independent actors. Essentially, assembly theory is broader in scope, being based on the assumption that anything is possible. Allogenic succession implies there are rules, and interactions define a certain discernible path toward a climax or more or less steady-state community. In restoration, these rules are often no longer in effect. They are typically isolated, severely degraded, or built from scratch. Thus the processes associated with secondary allogenic succession are defunct. The methods suggested by allogenic succession are similar to those suggested by assembly theory. From each perspective, species arrive at a site over time, but each plays a role in determining which species will colonize next. Application: An assembly-based project would achieve better results - and more efficiently than the successional model. The principal change would be to move away from end-orientation and toward progressive and intensive intervention. Mass introduced species typically fail shortly after introduction. Those that did establish had not yet reached abundances comparable to the natural system modeled, and several non-native species had invaded. Instead, 1st, collect a set of species that we believe were -or- might have been - involved in the assembly of the natural system, and might include other native species that could establish themselves. 2nd, introduce the species sequentially if persistence is desired, or in groups if richness is desired. (Appears to be a trade-off between persistence and richness). Which is opted for depends on the goal of the project. 3rd, control the order of introduction. This is crucial in determining the composition of the community created, since the order in which the species invade can determine which natives persist. If the species of concern is typically out-competed by another, it should be introduced much earlier than its competitor.
Luken, J. O. 1990 Directing Ecological Succession Chapman and Hall.	Chapters: What do we know about succession?, Obtaining information on succession, Plant populations: growth, decline, and persistence during succession, Methods of managing succession: plant and plant part removal, Methods of managing succession: changing resource availability, Methods of managing succession: changing propagule availability, Animals and Succession, A Landscape Perspective, Information Systems for prediction and decision-making
Magee, T.K., T.L. Ernst, M.E. Kentula, and K.A. Dwire. 1999. Floristic comparison of freshwater wetlands in an urbanizing environment. Wetlands 19(3): 517:534	Comparisons of the floristic diversity of natural wetlands and mitigation wetlands in Portland area.
McIntosh, R. P. 1980. The relationship between succession and the recovery process in ecosystems. In J. Cairns, (Ed). The recovery process in damaged ecosystems. Ann Arbor Science Publishers, Ann Arbor, Michigan.	Literature review to date. Seems to rant. Includes Gleasonian review.

Mitsch, W. H. and R. F. Wilson. 1996. Improving the success of wetland creation and restoration with know-how, time and self-design. Ecological Applications 6(1). P. 77-83.	Discusses 3 fundamental requirements for achieving success of creation and restoration projects: understanding function, giving system time, and self-design. Argue that ecosystem-level research and ecosystem modeling may provide better guidance on when created and restored wetlands can be expected to comply with criteria that measure their success. Vegetation cover and be an easy measure of success, but it is a poor indicator of function.
Mitsch, W. J., Wu, X., Nairn, R. W., Weihe, P. E., et al, 1998, Creating and Restoring Wetlands, Bioscience; Washington, 48(12):1019-1030	Rundown of the first three years of project by OSU, Columbus. They created two identical wetlands, one ha. in size each, one of which was planted in wetland vegetation and the other was left bare. The data after three years suggests to the researchers that planting a created wetland is not necessary.
Mitsch, W.J. 1995. The Olentangy River Wetland Research Park at the Ohio State University: Coupling Wetlands with High Education. Wetland Journal 7(3):4-7	Overview of project at OSU of side-by-side comparison of two created wetlands, one planted and one not.
Mockler, A., Casey, L., Bowles, M., Gillen, N., and Hansen, J., 1998, Results of Monitoring King County Wetland and Stream Mitigations, King County Department of Development and Environmental Services, Seattle, WA	Report from King County of a survey of mitigation sites within the jurisdiction. Of 40 sites, 9 were not installed, 23 were not successful by listed performance standards and 6 were deemed successful.
Mueller-Dombois, D. and H. Ellenberg, 1974, Aims and Methods of Vegetation Ecology, John Wiley & Sons, New York, 547 pages	Integrated syntheses of European and Anglo-American approaches to plant synecology or vegetation science. Details different concepts on communities and trends on vegetation ecology, descriptions of different sampling techniques and their uses, classification of vegetation based on data, and "spatial and temporal explanations of vegetation patterns".
Niswander, S. F., and Mitsch, W. J. 1995. Functional Analysis of a Two-year-old Created In-stream Wetland: Hydrology, Phosphorus Retention, and Vegetation Survival and Growth. Wetlands, 15(3): 212-225	Functional (Biological ?) analysis of first two years of site development. 50 years growth was simulated to determine the ultimate state of wetland.
Noble, I.R. and R.O. Slatyer. 1980. The Use of Vital Attributes to Predict Successional Changes in Plant Communities Subject to Recurrent Disturbances. Vegetatio. 43:5-21	Alternative to Clementian succession model based on "Vital Attributes"
Noon, K.F., 1996, A Model of Created Wetland Primary Succession. Landscape and Urban Planning, 34: 97-123	Description of primary succession in wetlands on reclaimed mine land in Texas. Uses snapshot data from year 2,4,8,11.
Odum, W. E. 1988. Predicting ecosystem development following creation and restoration of wetlands. In : Zelazny, J. and J. S. Feierabend (eds.) Proceedings of a Conference Increasing our Wetland Resources Mayflower Hotel, Oct. 4-7, 1987, Washington DC, National Wildlife Federation.	Based on Mitsch and Gosselink (1986) wetlands tend to change with early characteristics of opportunistic plant species capable of being established from seeds and growing in a variety of different types of saturated soils Perturbation such as fire and changes in hydroperiod or herbivory, can cause a reversion to an earlier stage of wetland succession. Reclamation and creation projects often act like disturbed wetlands.
Ossinger, M. 1999. Success Standards for Wetland Mitigation Projects- a Guideline. Washington State Department of Transportation- Environmental Affairs Office	A guideline for writing success standards that make sense and are achievable
Pacific Estuarine Research Laboratory. 1990. A manual for assessing restored and natural coastal wetlands, with examples from Southern California. A Publication of the California Sea Grant College.	Addresses utility of reference wetland data and temporal and spatial variability.

Packard, S. 1994. Successional Restoration, Thinking Like a Prairie. Restoration and Management Notes 12(1): 32-39	Early restoration effort in Illinois prairie. Narrative on a decade of volunteer efforts and lessons learned in restoration.
Parker, T.V. 1997. The Scale of Successional Models and Restoration Objectives. Restoration Ecology. Vol. 5 No. 4. P. 301-306.	Paper considers two issues: degree to which restoration sites are impacted by influential processes originating from outside the site and systems attempting to restore are historically contingent, which creates problems in interpreting and applying influential processes on a system. Expand scale temporally and spatially to reveal the multi-dimensional nature of ecological processes. Manage site so that historically correct influential processes act to produce the patterns of biological organization desired.
Parker, V. T and S. T. A. Pickett. 1998. Chapter 8: Historical Contingency and Multiple Scales of Dynamics within Plant Communities. In: Peterson, D. L. and V. T. Parker (eds.). Ecological Scale: Theory and Applications. Columbia University Press, New York.	
Parker, V. T. and Leck, M. A., 1985, Relationships of Seed Banks To Plant Distribution Patterns in a Freshwater Tidal Wetland, American Journal of Botany 72(2):161-174	relationships between zone within wetland and species prevalence as seed or plant, Seed bank density, dispersal of various plants by water, etc.
Parker, V. T. and S. T. A. Pickett. 1996. Understanding Implications of the Modern Ecological Paradigm: Viewing Restoration as a Process. In: Peterson, D. L. and C. V. Klimas, (eds.). The Role of Restoration in Ecosystem Management Society for Ecological Restoration. Omnipress, Madison, WI. P. 15-20.	RE (restoration ecology) must use models of ecological systems as being constantly dynamic and open to outside processes if consistently successful results are desired. More than one reference state must be considered as a model for restoration sites; consider the range of equally valid reference conditions. Shift from equilibrium models to patch dynamics = non-equilibrium more appropriate/successful for vegetation management Need to consider how natural processes have been modified, and how that will impact the dynamics of the restoration. Consider restoration as a process not an event. Assume that systems are open, which suggests a model in which they can be regulated by external processes, are subject to natural disturbances, and have multiple, probabilistic successions that lead to alternative steady-states. Ecosystems are in flux rather than in balance.
Parker, V. T. and S. T. A. Pickett. 1997. Chapter 3 Restoration as an ecosystem process: implications of the modern ecological paradigm. In: Urbanska, Webb, and Edwards (eds.). Restoration Ecology and Sustainable Development. University Press, Cambridge	Goal of ER is to return ecosystems to a condition from which they can be self-sustaining thereafter. Restoration often based on assumption that nature is fixed or in balance, and this produces simplistic goals. Contemporary paradigm assumes that ecosystems are open, can be regulated by external processes, and are subject to natural disturbances. If restoration is focused on re-establishing functioning and self-sustaining systems, then recapturing the dynamics of systems may be dependent on ensuring that appropriate processes are returned to the degree with which they were important in the past dynamics of the system. Restoration must be seen as a part of an ongoing process, not as a discrete event. Processes arising outside the system can regulate the system as much as can internal processes. An inclusive model of ecosystems as open and variable in successional pathways and stable points, fluctuating in energy and mineral flow, and includes the impacts of humans. Human impact varies in rate and magnitude, but usually increases the rate of change within ecosystems.

Pendergrass, K. L. , P. M. Miller, and J. B. Kauffman. 1998. Prescribed fire and the response of woody species in the Willamette Valley wetland prairies. Restoration Ecology 6:3 pp. 303-311	Changes in woody species density and height to maintain balance between woody and herbaceous.
Peterman, R. M. 1980. Influence of Ecosystem Structure and Perturbation History on Recovery processes. In J. Cairns, (Ed). The recovery process in damaged ecosystems. Ann Arbor Science Publishers, Ann Arbor, Michigan.	Evidence that ecological systems may have more than one stable equilibrium state. As long as the system does not cross a boundary, it tends to move toward the stable equilibrium. If the boundary is crossed, it tends to move toward another stable equilibrium. Return to the prior equilibrium stage will not occur by stopping the impact.
Pickett, S. T. A. and P. S. White. (eds.). 1985. The Ecology of Natural Disturbance and Patch Dynamics. Academic Press. Orlando, Florida.	Some chapter titles: Disturbance Regimes in Temperate Forests, Disturbance and Vertebrates: An Integrative Perspective, See also in this bibliography chapter 1: Introduction under White, Chapter 11: The Response of Woody Plants to Disturbance: Patterns of Establishment and Growth, under Canham, Chapter 14: Within-Patch Dynamics of Life Histories, Populations and Interactions, under Thompson , and chapter 21: Patch Dynamics a Synthesis, under Pickett.
Pickett, S. T. A., and M. J. McDonnell. 1989. Changing Perspectives in Community Dynamics: A Theory of Successional Forces. Trends in Ecology and Evolution Vol. 4, No. 8, p. 241-245.	Review of classical ideas and assumptions about succession (orderly, directional, predictable) and climax (ideal)
Pickett, S. T. A., and McDonnell, M. J. 1993. Humans as components of Ecosystems: A synthesis. Chapter 24. In: McDonnell and Pickett (eds.) Humans as Components of Ecosystems. Springer-Verlag, NewYork	discussion of the history of Ecological theory in relation to the subject of man's influence on nature and man's place in ecological theory.
Pickett, S. T. A., and White, P. S. 1985. Patch Dynamics: A Synthesis. Chapter 21 In: Pickett and White (eds.) The Ecology of Natural Disturbance and Patch Dynamics. Academic Press, Orlando	States 1) what is important about disturbance 2) what mechanistic predictions should be made about disturbance and 3) the factors that control the role of disturbance in particular situations
Pickett, S. T. A., S. L. Collins, and J. J. Armesto. 1987. Models, Mechanisms, and Pathways of Succession. The Botanical Review 53:3, 335-371.	Review of basic ideas of pathway, mechanism, and model in succession. Successional pathway is the temporal pattern of vegetational change. A mechanism of succession is an interaction that contributes to successional change, and depends on the level of organization addressed. Model is concept to explain pathways by combining various mechanisms and specifying the relationship among the mechanisms and the various stages of the pathway.
Pielow, E.C. 1985. Assessing the diversity and composition of restored vegetation. Canadian Journal of Botany 64:1344-1348.	A tool to compare diversity between restored and native vegetation without calculating diversity indexes.
Poet, C and D. Thompson. 1996. Compost use in wetland restoration. BioCycle 37(1): 65-68	Study in Everett, WA on the impacts of composted yard trimmings and biosolids in wetland restoration.
Quammen, M. L. 1986. Measuring the Success of Wetlands Mitigation. National Wetlands Newsletter 8:6-8.	Proposes standards for determining success of mitigation projects.
Race, M.S. 1985. Critique of Present Wetlands Mitigation Policies in the United States Based on an Analysis of Past Restoration Projects in San Francisco Bay. Environmental Management 9(1): 71-82	Thorough survey of marsh restoration and creation efforts for mitigation in San Francisco Bay. Found most projects were ecological or legal failures.
Race, M.S. and M.S. Fonseca. 1996. Fixing Compensatory Mitigation: What will it Take? Ecological Applications 6(1): 94-101	Based on Nationwide reports of broad scale failures of mitigation efforts, authors try to identify problems in regulatory process and offer solutions.

Redmond, A. 1999. How Successful is Mitigation. National Wetlands Newsletter Jan/Feb 1992.	Editorial piece with no references highlighting a Florida Department of Environmental Regulation study on permit compliance. It shows dismal failure on mitigation to be constructed or successful.
Reinmold, R. J. and Cobler, S. A. 1986. Wetland Mitigation Effectiveness. US EPA Contract No. 68-04-0015, U. S. Environmental Protection Agency, Region 1, Boston, MA	Review of five mitigation sites in New England for ecological success and permit compliance. Found little success
Richter, K. O., R. R. Horner, and S. S. Cooke. 1997. Monitoring to establish reference conditions for freshwater wetlands restoration. Edited by K. Ewing, and S. M. Allen.. EPA/600/XXX. U. S. EPA, Western Division, National Health and Environmental Effects Laboratory, Corvallis, OR. 294 p.	Local and addresses reference wetland selection process p. 8-10.
Rocchio, F.J. 1998. Donor Soil Use in Wetland Restoration: Implications for the Initial Vegetation Establishment. Masters Thesis, University of Washington,. Seattle	Comparisons of growth rates of wetland plants in three soil treatments on wetland bank site in King county.
Rylco, M. and L. Storm. 1991. How much wetland mitigation are we requiring? Or is no net loss a reality? In: Proceedings of Puget Sound Research ’91, Seattle, Washington. Published by Puget Sound Water Quality Authority	A review of the Corps 404 data base to assess whether mitigation was compensating for impacts to wetlands. Found that only 10% of acres impacted were mitigated for between 87 and 90 in Seattle area. Other studies found 76% replacement for 1980 to ‘86
Salzer, D. 1994. Selection of a vegetation monitoring strategy for the Eastern Gateway wetland mitigation project. Oregon Field Office, The Nature Conservancy	Outlines the process by which a sampling design for a large wetland mitigation site was developed and chosen. Goes into detail on design and analysis.
Schaller, F. W. and P. Sutton, (eds.). 1978. Reclamation of Drastically Disturbed Lands. American Society of Agronomy, Madison, WI	
Schuster, W. S. and Hutnik, R. J., 1987, Community Development on 35-year-old Planted Minespoil Banks in Pennsylvania, Reclamation and Revegetation Research, 6: 109-120	Represents a study design of succession with planted and volunteering native species on disturbed ground. Discusses the layout of data collection and plot design as well as statistical analysis. Discussion of the successional role of the extant plants after 35 years.
Shaffer, P.W. and T.L. Ernst. 1999. Distribution of Soil Organic Matter in Freshwater Emergent/Open Water Wetlands in the Portland, Oregon Metropolitan Area. Wetlands 19(3): 505-516.	Surveyed the soil organic matter of natural wetlands and mitigation wetlands and found lower concentrations in mitigation wetlands. The levels did not increase over 6 years.
Shaffer, P.W., M.E. Kentula, S.E. Gwin. 1999. Characterization of wetland hydrology using hydrogeomorphic classification. Wetlands 19(3): 490-504.	Compared hydrologic regime in natural wetlands to mitigation wetlands and found mitigation wetlands have deeper water, longer inundation, and less fluctuation.
Shiach, J.A., and Franklin, K.T., 1995, Wetland Compensatory Mitigation in Oregon: A Program Evaluation With A Focus on Portland Metro Area Projects, Publication of Oregon Division of State Lands and USEPA	Review of mitigation sites in Metro Portland area. Results focus on breakdown of projects for total acres lost, gained in emergent, forested, open water wetlands, etc. Includes recommendations for DSL for improvement of compliance.
Shumway, S. W. and M. D. Bertness. 1994. Patch Size and Marsh Plant Succession Mechanisms. Ecology 75(2) p. 564-568.	Clementsian facilitation model of succession revived recently with studies from New England. Physically stressful environments that must be modified by pioneer species before competitive dominants are able to colonize. This paper examines the hypothesis that patch size effects mechanisms of secondary succession in salt marsh vegetation

Simenstad, C. and R. M. Thom. 1996. Functional Equivalency Trajectories of the Restored Gog-Le-Hi-Te Estuarine Wetland. Ecological Applications 6:1, p. 38-56.	Mismatch between long-term processes and short-term expediency of management decisions. Ability of managers to assess mitigation success over regulatory time frames depends on the selection of wetland attributes that can predict long-term trends in the development of the restored/created system. Basic lack of long-term data sets describing the patterns, trends, and variability in natural wetland responses to disturbance, as well as natural variability in wetland attributes in mature wetland communities.
Smith, R. D., Ammann, A., Bartoldus, C. and Brinson, M. M., 1995, An Approach for Assessing Wetland Functions Using Hydrogeomorphic Classification, Reference Wetlands and Functional Indices, Technical Report WRP-DE-9, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS www.wes.army.mil/EL/wetlands/wlpubs.html	Rundown of HGM principals in more concise language than Brinson, 1993. Discussion of functions and values of wetlands through the HGM lens as relates to section 404
Smith, S.D., S.C. Bunting, M. Hironaka. 1987. Evaluation of the improvement in sensitivity of nested frequency plots to vegetational change by summation. Great Basin Naturalist 47(2):299-307	Estimates of frequency based on three sizes of nested plots in forested and shrub steppe.
Sousa, W.P. 1984. The Role of Disturbance in Natural Communities. Annual Review of Ecology and Systematics 15:353-391	Review of the impact of disturbance on the species abundance and population abundance of communities. "One might argue that the continued application of the concept of climax to natural systems is simply and exercise in metaphysics."
Stafford, S.G. 1993. Data, data everywhere but not a byte to read: Managing monitoring information. Environmental Monitoring and Assessment 26:125-141	Review of Oregon State University database project that houses 2400 data sets from 350 studies and is growing. Tells how and what.
Stauffer, A. L., Brooks, R. P., 1997, Plant and soil responses to salvaged marsh surface and organic matter amendments at a created wetland in central Pennsylvania, Wetlands, 17(1): 90-105	success of using salvaged marsh surface organic matter soil amendments in terms of species diversity, richness and survival
Stevens, M. L. and R. Vanbianchi. 1993. Restoring Wetlands in Washington: A Guidebook for Wetland Restoration, Planning and Implementation. Washington State Department of Ecology. Publication 93-17.	At minimum, monitoring should be directed at evaluating the success of mitigation efforts relative to the goals and performance standards established. No specific success standards are identified.
Storm, L. E. 1996. Integrating Science and Policy to Attain Greater Ecological Benefits from Freshwater Wetland Creation and Restoration within the Coastal Zone of Washington State. Master Thesis. University of Washington, Seattle.	Study to determine the extent to which the regulatory and current policy admin. procedures lead to the attainment of the No-Net-Loss goal. Conducted an evaluation of resource outcomes, identifying causal and process problems, and developed a strategy with recommendations. Asked: were compensatory projects implemented?, and if so, were they implemented according to mitigation plans?, and if so, did they attain project goals for ecological functions?

Storm, L. E. and J. Stellini. 1994. Interagency Follow-Through Investigation of Compensatory Wetland Mitigation Sites. Joint Agency Staff Report. U. S. EPA Region 10- Water Division Wetlands Section (WD-128).	Based on same work as Storm 1996. Additional work on informing the USACE and permittees of mitigation site conditions and to facilitate actions to improve mitigation site functioning. Recommendations on Interagency coordination and follow through to improve quality of mitigation.
Strickland, R. 1986. Wetland Functions, Rehabilitation, and Creation in the Pacific Northwest: The State of Our Understanding Proceedings of a Conference… Washington State Department of Ecology. Olympia WA.	Chapter 8 Summary of Conference and Information Needs for Mitigation in Wetlands: p. 156 Monitoring. 2 levels of Monitoring: Compliance Success did the regulating agency's requirements get implemented and a qualitative field assessment of how successful those projects are. Functional Success monitoring would be designed to determine if restoration successfully replaced those functions and species it was designed for. Should begin before restoration does, and include a control/reference area.
Sykes, J.M., A.D. Horrill and M.D. Mountford. 1983. Use of visual cover assessments as quantitative estimators of some British Woodland Taxa. Journal of Ecology 71:437-450	Variation within observers and between observers in measurements of cover in different plot sizes in forested sites. Also comparisons to point quadrat estimates.
Tear, L.M. 1995. Estimating Species Abundances in Estuarine Wetland Plant Assemblages: An Examination of Sampling Methods and Designs. Masters Thesis, University of Washington, Seattle.	Comparisons of inter- and intra-observer errors in visual estimates of cover by emergent estuarine plants. Also, comparisons between visual estimates and random point sampling and discussions of sampling densities required. Also discussion of the plant communities of Western Washington estuarine wetlands.
Thom, R. M., 1988, Adaptive Management of Coastal Ecosystem Restoration Projects, Battelle Marine Sciences Laboratory Sequim, WA	See Thom, 1997
Thom, R. M., 1997, System-development matrix for adaptive management of coastal ecosystem restoration. Ecological Engineering 8:219-232	using a matrix to more accurately contrast project objectives against information on performance of a restored system.
Thompson, J.N. 1985. Within-Patch Dynamics of Life Histories, Populations, and Interactions: Selection Over Time in Small Spaces Chapter 14. In: Pickett and White (eds.) The Ecology of Natural Disturbance and Patch Dynamics. Academic Press, Orlando	Looks at 1) how the demography of plants can vary with respect to position within a patch (within-patch dynamics as a consequence of survivorship and reproduction) 2) the extent to which within-patch dynamics are a result of sorting of genotypes and 3) the effect of patch age and size on interspecific interactions and selection.
Torok, L. S., Lockwood, S., and Fanz, D. 1996. Environmental Auditing: Review and comparison of wetland impacts and mitigation requirements between New Jersey, USA, Freshwater Wetlands Protection Act and Section 404 of the Clean Water Act. Environmental Management 20(5): 741-752	Review of permitting trends under Freshwater Wetlands Protection Act in New Jersey between 1988 to 1993 as compared to 404 permits. Showed higher degree of protection under FWPA than 404, though it still allowed 32 ha of unmitigated impacts annually.
Urban, C. A., C. A. Cole, R. P. Brooks, J. J. Morgan, and D. K. Hoyt. Ecosystem Development in Mitigation Wetlands of Northeastern New York. Penn State Cooperative Wetlands Center @www.wetlands.cas.psu.edu.fortdrum.html	Study of plant and invert colonization and succession rates in newly created and restored wetlands and to assess mitigation wetland design and performance. Preliminary results suggest that colonization and succession rates are higher in restored wetlands than in created wetlands, because of inherent seed banks and provision of more organic structure/refugia for colonizing species.

van der Valk, A. G., 1981, Succession in Wetlands: A Gleasonian Approach, Ecology, 62(3): 688-696	A model by which one can predict the potential vegetation of a wetland over time. Needed inputs are present vegetation on site, species represented in seed bank, potential vegetation of the wetland and some general life-history information on each species
Van Deusen, P.C. and B. Bayle. 1991. Evaluating Plot Designs for the Tropics. US Department of Agriculture, Forest Service, General Technical Report SO-8.	Comparison of fixed-area plots to variable plot methods for tropical forest vegetation sampling. Details to assist in decision making
Walker, L. R. J. C. Zasada, and F. S. Chapin, III. 1986. The role of life history processes in primary succession on an Alaskan floodplain. Ecology 67:5. P. 1243-1253	Study to examine the degree to which life history traits (seed rain, seedling establishment, and longevity) direct a primary successional sequence on an Alaskan floodplain.
Walker, S. 1988. A Review of Past Mitigation Projects in Florida. Proceedings of the National Wetland Symposium: Mitigation of Impacts and Losses. New Orleans, LA. Association of State Wetland Managers Technical Report 3, Berne, NY	Review of permitted wetland mitigation in Florida prior to 1885. Of 33 projects, 10 were successful, defined as accomplishing the goal of the mitigation effort. Details of projects included.
Washington Department of Ecology. 1993. Washington State Wetland Rating System- Western Washington. Publication #93-74. Washington State Department of Ecology. Olympia, WA.	
Weldin, E., 1999. King County East Lake Sammamish Parkway SE Project Wetland/Stream Mitigation Transect D Vegetation Monitoring Report. Prepared for Pesha Klein, University of Washington Wetland Science Certificate Program.	Vegetation sampling of the 446 foot transect D on the Laughing Jacob mitigation site using systematic placement of 1m square plots. Sampling done in April and authors state that transect may have been misidentified. %cover by species by plot is included.
Wentworth, T.R., G.P. Johnson and R.L. Kologiski. 1988. Designation of wetlands by weighted averages of vegetation data: a preliminary evaluation. Water Resources Bulletin 24(2):389-396	Use of weighted averages based on wetland indicator status to determine status of particular plot as wetland or upland. Shows strong correlation.
White, P.S. and S.T.A. Pickett. 1985. Natural Disturbance and Patch Dynamics: An Introduction. Chapter 1 In: Pickett and White (eds.) The Ecology of Natural Disturbance and Patch Dynamics. Academic Press, Orlando	Introduction to Patch Dynamics, Perturbation and Disturbance and discussion of endogenous and exogenous factors in community pattern.
Williams, S. L. and J. B. Zedler. 1992. Restoring Sustainable Coastal Ecosystems on the pacific coast; Establishing a research agenda.	A Publication of the California Sea Grant College. All about estuarine systems.
Wilson, R.F. and W.J. Mitsch. 1996. Functional Assessment of Five Wetlands constructed to mitigate wetland loss in Ohio, USA. Wetlands 16(4): 436-451	Four of five wetlands sampled were in compliance and demonstrated medium to high ecosystem success. Mitigation sites mostly had same HGM class, but different subclass. Wetland ages were from 2 to 5 years. Functions were assessed using method unique to this study.
Young, P., 1996, The “New Science” of Wetland Restoration, Environmental Science and Technology 30(7): 292-296	non-technical overview of three restoration/creation projects

Zedler, J.B. and J.C. Calloway. 1999. Tracking Wetland Restoration: Do mitigation sites follow desired trajectories? Restoration Ecology 7(1):69-73	Results from Sweetwater Marsh mitigation site near San Diego show that after 12 years, the site is not following the developmental path suggested by models and reference sites and will not meet performance standards soon. Performance standards based on habitat for endangered Clapper Rail
Zedler, J.B.,. 1993. Canopy Architecture of Natural and Planted Cordgrass Marshes: Selecting Habitat Evaluation Criteria. Ecological Applications, 3(1):123-138	Study of Clapper Rail nesting patterns in created and natural wetlands.
Zentner, J.J. 1987. Wetland Restoration Success in Coastal California. In: Increasing Our Wetland Resources, Proceedings, National Wildlife Federation-Corporate Conservation Council, Washington, D.C.	Review of 63 coastal California restoration projects between 1954 and 1985. Disputes conclusions by M. Race on the levels of failure. Performed monitoring to determine project success including use of W.E.T function assessment. Found 65% success rate as defined as similar structure and levels of functioning as near-by natural wetlands.